

AS16-5

Laparoscopic Paraileostomal Hernia Repair

Kai He, Qiyuan Yao

Department of General Surgery, Huashan Hospital, Fudan University, China

Aim: Paraileostomal hernia (PISH) is a major clinical problem. The aim of this study is to evaluate the laparoscopic PISH repair.

Method: The demographics, perioperative preparations, operative procedures and the follow-up data will be presented in this report.

Results: We received 17 PISH patients from Jan 2005 to Dec 2015 including 13 of ileal conduit and 4 of ileostomy. We performed 'laparoscopic Sugarbaker' on 12 PISH patients including 11 ileal conduit and 1 ileostomy, 'Lap-re-Do Sugarbaker' on 2 PISH patients of ileostomy, and 'Lap-re-Do Keyhole' on 1 PISH patient of ileostomy. 'Suture repair' had to be performed on 2 PISH patients of ileal conduit because of emergent incarcerated PISH or serious intraperitoneal adhesion detected during laparoscopic procedures with high risk of unrecognized enterotomy. The mean operating time was 89.4min and the mean length of postoperative hospital stay was 6.1 days. 14 patients performed by 'laparoscopic Sugarbaker' or 'Lap-re-Do Sugarbaker' technique were observed without recurrence, while another 3 patients after suture repair or 'Lap-re-Do Keyhole' technique were observed as recurrence in one year postoperatively. Postoperative complications including 4 incompletely ileus, 3 seroma, and one after puncturing seroma complicated with subcutaneous abscess with re-operation of incision drainage. No unrecognized enterotomy or mortality occurred in this series.

Conclusions: 'laparoscopic Sugarbaker' and 'Lap-re-Do Sugarbaker' technique can be considered as a clinical choice for PISH patients of ileal conduit and ileostomy, while the operative technique shall be improved to reduce the incidence of postoperative complications. Any procedures involved 'Keyhole' technique are not recommended.

AS16-6

Lap-re-Do Sugarbaker is the ideal option for PSH

Steven Yao Qiyuan

General Surgery, Fudan University, China

AS17-1

Clinical characteristics of recurrent cases with inguinal hernia after Kugel repair

Hitoshi Oda

Oda Clinic, Day Surgery Center, Japan

Kugel repair is the minimally invasive open transinguinal preperitoneal approach for inguinal hernia. In my series from January 2003 to July 2016, 2718 patients (2389 males and 329 females, average age 55±15 years old) and 2949 lesions with inguinal hernia underwent Kugel repair. Overall, 21 patients (0.7%) recurred after Kugel repair. All of the recurrent patients were males. Four patients had the operation during a learning curve period. Six patients relapsed within 3 months after Kugel repair. According to the classification of Japanese Hernia Society, more than 50% (12 cases) of recurrent cases were classified in type II-1. After simultaneous bilateral inguinal hernia repair, 9 cases of 231 cases recurred at a higher rate of 3.9%. Following the repair for direct inguinal hernia, 5 cases had the relapse of indirect inguinal hernia. Of patients with postoperative giant hematoma or seroma, 5 patients recurred. The mechanisms of recurrence after Kugel repair are considered as follows: 1) insufficient dissection around the pubis and the cavity of Retzius or oversight of concomitant type II-1 hernia; 2) insufficient dissection of the vaginal process or oversight of small indirect inguinal hernia; 3) mesh migration during simultaneous bilateral inguinal hernia repair; 4) mesh migration under the pressure of postoperative giant hematoma or seroma; 5) insufficient parietalization of the testicular vessels and the spermatic cord; and 6) inadequate mesh size. In order to prevent recurrence of inguinal hernia after Kugel repair, Kugel patch must be self-expanded in preperitoneal space as covering the entire myopectineal orifice.

AS17-2

TEP treatment for recurrent inguinal hernia

U-Chon Chio, Kuo-Hsin Chen, Jiann-Ming Wu, Ying-Da Chen, Shu-Yi Huang, Tzu-Chao Lin, Tiing-Foong Siow, Chao-Man Loi

Division of General Surgery, Far Eastern Memorial Hospital, Taiwan

Background: This study is to assess whether TEP approach shows benefits in recurrent inguinal hernia repair.

Methods: Retrospective reviewed patients with recurrent inguinal hernia underwent TEP or Lichtenstein approach. The operative outcome measures: chronic inguinal pain, post op stay, return to normal daily activities, re-recurrent rate and intraoperative factor.

Results: Since 2001/9 ~ 2016/6, there was 148 patients with recurrent inguinal hernia underwent TEP repair (bilateral 20; Right 74; Left 54). Mean operation times were 139.8 minutes in bilateral recurrent hernia and 100.9 minutes in unilateral recurrent hernia. Mean post op stay was 1.6 days. Mean duration of return to normal daily activities was 5.4 days. There was two patient has re-recurrent of hernia. As compare to patient with recurrent inguinal hernia underwent Lichtenstein approach, significantly less chronic pain (12.1 % vs. 21.5 %) and earlier return to normal daily activities (5.4 vs. 7.3 days). Operative time was significantly longer in laparoscopic operations (100.9 vs. 54.2 min, unilateral).

Conclusions: TEP treatment for recurrent inguinal hernia showed reduced chronic inguinal pain and an earlier return to normal daily activities but significantly longer operative time.

AS17-3

Clinical characteristics and Choices of Laparoscopic Procedures for Recurrent Inguinal Hernias: A Report of 330 Cases

Fei Yue, Jian-wen Li, Min-hua Zheng

Gastrointestinal Surgery, Ruijin Hospital, Shanghai Jiao Tong University School of Medicine, China

Objective: To summarize the clinical characteristics of recurrent inguinal hernia and investigate the choice of laparoscopic procedures.

Methods: The clinical data of 352 recurrent inguinal hernias in 330 patients between January 2001 and December 2014 were analyzed retrospectively. There were 317 male and 13 female patients with a median age of 66 years old and an average BMI of $23.2 \pm 2.9 \text{ kg/m}^2$. In this group, 307 were primary recurrent hernias while the remaining 45 were multiple recurrent ones. The same surgical group accomplished all procedures and conducted a follow-up with a median time of 59 months.

Results: (1) Direct inguinal hernia was more frequent in recurrent hernias (52.8%) than in primary ones (21.9%) ($P=0.000$). (2) The procedures consisted of whole myopectineal orifice repair or defect repair only. The latter group required a higher rate of mesh fixation ($P=0.000$). (3) Recurrent hernias after ligation, sclerotherapy, suture repair, Lichtenstein repair, plug and patch repair, and preperitoneal repair were treated with appropriate procedures, including TAPP, TEP and IPOM. (4) The operation time was $39.5 \pm 13.4 \text{ min}$. The VAS at 1-day was 2.4 ± 1.1 . The length of hospital stay was $1.7 \pm 1.4 \text{ d}$. 99.7% patients returned to normal activities within 2 weeks. Totally, we had 1 (0.3%) recurrence.

Conclusion: Laparoscopic repair of recurrent inguinal hernias is a safe and effective procedure. Repairing the whole myopectineal orifice or defect only should be selected after intraoperative evaluation. The selection of procedure depends on the factors including previous surgical approach, space of mesh placement and surgeons' personal experiences.

AS17-4

Trans-Inguinal Posterior Prosthetic Repair (TIPP) for Recurrent Groin Hernia

Chun-Hao Lee¹, Ching-Shui Huang^{1,2}

¹*Department of Surgery, Cathay General Hospital, Taiwan*

²*Professor in Surgery, Taipei Medical University, Taiwan*

Both laparoscopic and TIPP can be used to treat recurrent groin hernia successfully if posterior wall was re-enforced with mesh.

444 patients with 482 sides of recurrent groin hernia were repaired with TIPP technique from 2001~2015, M: F=15.4:1, Age: 11 ~ 98y/o (mean: 60.3 y/o). The recurrent groin were classified according to Gilbert Classification. The VAS (0-5) pain scores were recorded at postoperative day 1, 6, and 90, then followed annually for recurrence and chronic pain. Three types of TIPP mesh were used: Plug and patch (147) for discrete or small recurrence, PHS/UHS (171) for moderate to severe posterior wall failure, and Kugel/Modified Kugel Patch (164 sides) for severe posterior wall failure, Results: Right: Left: bilateral=225: 191:66; direct: indirect: combined=220: 201: 61; Time from last repair to current repair: 55.2 months. Operation time: 44 min; previous failed repair: Bassini: 138, Shouldice: 41, anterior mesh: 34, endohernia: 27, posterior mesh: 13, bilayer: 11, pediatric: 9, plug: 10, other tissue to tissue repair: 199. Hospital stay: 0 ~ 4 days (mean 1.36 day). Complication (6%) included urinary retention, testicular atrophy, superficial wound infection, and hematoma/seroma. Mean post-operative VAS score at postop day 1, day 6 and day 90 were: 1.35, 0.8, and 0.2. The incidence of chronic inguinal pain was 4.8%. There were 8 re-recurrences (1.7%) in the follow-up period (1-10 years).

TIPP repair is an effective repair for recurrent groin hernia.

AS17-5

The surgical selection for recurrence inguinal hernia repair

Hong-guang Ma

Department of General Surgery, China-Japan Friendship Hospital, China

The optimal treatment for recurrent inguinal hernia is of concern due to the high frequency of recurrence. Some surgeons recommend laparoscopic repair of recurrent inguinal hernias, whereas others prefer an open repair. Since 1990, there have been 6 literatures on meta-analysis, comparing Lichtenstein and laparoscopic hernioplasty in recurrent inguinal hernia repair. Their common conclusion is that the laparoscopic and open procedures are equally quick to perform with similar recurrence rates and postoperative pain. However, the laparoscopic procedures have advantages of lower postoperative wound infection rates and quicker return to normal work compared to open techniques. In the specialized laparoscopic centers, laparoscopic and open procedures could be performed with equal operation time and complications. The EHS recommendation for recurrent hernias is straight forward: 'Modify technique in relation to previous technique. If previously anterior, consider open preperitoneal mesh or laparoscopic approach. If previously posterior, consider Lichtenstein operation'. As the saying goes, "if three people do one thing, it will end up with three results". Which method is the best selection? Just like primary inguinal hernia repair there is no golden standard operation, nor do it for recurrent inguinal hernia repair. There is no universal operation for recurrent inguinal hernia. Therefore, the principle of individualization should be taken into consideration when making a choice for recurrent inguinal hernia repair. Surgeon's experience and adept approach are critical for recurrent inguinal hernia repair.

AS17-6

The clinical research of laparoscopic approach of recurrent inguinal hernia repair

Li-sheng Wu, Jian-wei Yu

Department of Hernia and Metabolism of Loss Surgery, Anhui Provincial Hospital, China

Background and Objectives: Treatment for the recurrent inguinal hernia is difficult clinically. The purpose of this study was to examine clinical outcomes of laparoscopic treatment for recurrent inguinal hernia.

Patients and Methods: A retrospective study reviewing the medical records of patients with recurrent inguinal hernia who underwent surgeries from October 2009 to June 2016 was done. Patients were divided into two groups according to surgical procedure (laparoscopic group n=51 or conventional open group n=45).

Results: There were no statistical differences between the two groups relevant to age, time of hernia reoccurrence, or type of hernia reoccurrence. However, in the laparoscopic group the rate of recurrence, hospitalization time, and postoperative pain was more favorable relative to the conventional open group. But, the laparoscopic group required more time in the operating room. There were no statistical differences between the two groups relative to complications or bleeding volume.

Conclusion: Surgical laparoscopic hernia repair for the treatment of recurrent inguinal hernia is preferable over the conventional open method because it has a low hernia recurrence rate, less postoperative pain, and effective.

AS17-7

Discussion of Laparoscopic Transabdominal Preperitoneal Repair for Recurrent Inguinal Hernia

Ming-gang Wang, Ying-mo Shen, Jie Chen, Jin-xin Cao, Yi-lin Zhu, Shuo Yang

Department of Hernia and Abdominal Wall Surgery, Beijing Chao-Yang Hospital, Capital Medical University, China

Objective: To explore the surgical techniques and the clinical effect of laparoscopic transabdominal preperitoneal (TAPP) repair for recurrent inguinal hernia.

Methods: Clinical data of 367 cases of recurrent inguinal hernia who were underwent TAPP repair from Mar. 2009 to Mar. 2015 in Beijing Chao-Yang Hospital of Capital Medical University were retrospectively analyzed.

Results: Laparoscopic operations were completed successfully in 365 cases, 2 cases were converted to open surgery. The operation time was (55.7±19.3) min (30-100 min) and the hospital stay was (4.9±2.7) d (2-12d). The rates of postoperative pain, hydrocele, and urinary retention were 4.1% (15/367), 13.1% (48/367), and 1.3% (5/367), respectively. There were no complications such as foreign body sensation, wound infection, and intestinal obstruction. All cases were followed up from 3 to 72 months [(36.5±14.7) months], 2 recurrent cases was observed and no mesh infection and long-term chronic pain.

Conclusions: Laparoscopic TAPP repair for recurrent inguinal hernia has advantages of minimal invasion and few complications, which is safe and effective.

AS17-8

Transabdominal preperitoneal repair for recurrent inguinal hernia

Matsumura Masaru¹, Taniguchi Ryuta¹, Oniduka Koji¹, Sakamoto Yoshitaka¹, Hirotsu Jun²

¹Department of Surgery, Moji Medical Center, Japan

²Department of Surgery, Hirotsu Onaka Clinic, Japan

There is no specific method that is preferred for repairing recurrent inguinal hernia, because many methods are used for the first surgery. According to the guidelines of the Japan Hernia Society, the anterior approach is recommended in cases where the preperitoneal approach is initially used. This is probably because if laparoscopic surgery is performed after preperitoneal repair, the peritoneum is difficult to detach. We use tumescent transabdominal preperitoneal repair. We call t-TAPP. T-TAPP involves performing TAPP after injecting a large amount of diluted tumescent analgesics and epinephrine into the preperitoneal space. On using t-TAPP, we found that the peritoneum swells and it is easier to dissect the preperitoneal layer. For repairing recurrent inguinal hernia, we have decided to use t-TAPP only in cases where the peritoneum swells. We treated seven patients all of whom showed peritoneal swelling. We therefore recommend t-TAPP for first-time as well as recurrent hernia.

AS17-9

Study of recurrence forms and their mechanisms after laparoscopic transabdominal preperitoneal (TAPP) inguinal hernioplasty

Masanori Sato, Masashi Nozawa, Takanobu Onoda, Atsuko Matsuyama, Takahiro Watanabe, Tomohito Sato, Norihiko Shiiya, Hidetoshi Wada

First Department of Surgery, Hamamatsu University School of Medicine, Japan

Purpose: To clarify the mechanisms associated with surgical technique leading to hernia recurrence after TAPP repair.

Methods: We made a comparative review of the operation videos for recurrent inguinal hernia and the corresponding primary hernia in 12 patients who had recurrent hernias after TAPP repair. We assessed type of hernia according to Japan Hernia Society classification and surgical techniques such as adequate dissection, mesh coverage and twisting or wrinkling of the mesh at the time of primary repair.

Results: Insufficient coverage with the mesh and/or twisting or wrinkling of the mesh was observed in 7 of 8 cases of type I recurrence. Insufficient dissection was observed in 3 of 3 cases of type II recurrence. Since we provided thorough policy in TAPP repair as to fully cover the myopectineal orifice with sufficient overlap of the mesh, the recurrence rate was decreased to 0.8% (5/590) compared with 4.3% (7/161) before the policy provided ($p=0.05$). All 5 cases with recurrent hernia after the policy were type I recurrence, and the last 3 of those were primary type I-3.

Conclusions: Full coverage of the myopectineal orifice with mesh is essential to prevent type II recurrence. The recent issue is how far we should secure the overlap inferior to the iliopubic tract for type I-3 hernia.

AS17-10

Laparoscopic transabdominal preperitoneal repair (TAPP) is effective for recurrent inguinal hernia

Yujo Kawashita, Takashi Ueda, Naonori Hazeyama, Nobuhiro Shin

Department of Surgery, Endoscopic Surgery, Fukuoka Seisyukai Hospital, Japan

Background: Recurrences continue to be seen after repair of inguinal hernias. The repair of these recurrent hernias is a more complex and demanding procedure because of already weakened tissues and distorted anatomy with a possible high re-recurrence rate. Here we report the efficacy of laparoscopic inguinal hernia repair using TAPP approach.

Methods: A total of 21 recurrent hernias were managed using the transabdominal preperitoneal (TAPP) technique. In the last 3 cases tumescent TAPP was performed, where locally anesthetic solutions were injected just beneath the peritoneum. Patients were followed up for 1 year. Longer follow-up evaluation was performed for the patients who underwent surgery in the initial 3 years. Surgery time, postoperative morbidity, and hernia re-recurrences were analyzed.

Results: Average operation time was 74.5 minutes. There was less pain in the postoperative period enabling faster recovery. Tumescent TAPP further decreased those postoperative pains.

Seroma developed in one patient. At a follow-up assessment after 1 year, one patient still had discomfort, however, there was no re-recurrence during observation period up to 3 years.

Conclusions: The morbidity and recurrence rates for the procedure are as low as for laparoscopic repair of primary hernias. Laparoscopic repair should be considered as first choice for recurrent hernias because it facilitates identification and precise repair of the recurrent hernia.